

Surelight Flat Electro-luminescent Panel

General

Surelight Flat Sheet or Strip is a paper-thin electro-luminescent lamp material that emits light when connected to an Surelight Power Supply.

To change the intensity of Surelight Flat Sheet or Strip, the voltage and frequency of the power supply output is varied. There is no appreciable change in the temperature of the lamp when operating.

Useful Life

The useful life of a Surelight Flat Sheet or Strip lamp varies by application and is dependant on brightness, duty cycle and ambient temperature.

Unlike other light sources, Surelight Flat Sheet or Strip never burns out completely; the lamp slowly loses brightness over time.

It is recommended that for most common applications that the lamp is replaced every 5,000 - 10,000 hours to enjoy the full utility of the product. In aisle lighting applications, the lamp is generally effective well in excess of 20,000 hours.

Environment Considerations

Surelight Flat Sheet or Strip with an all-purpose laminate is suitable for outdoor, damp or humid installations with an ambient temperature between -20°F (6°C) and 140°F (60°C). Special laminates are available to permit use of the Surelight Flat Sheet or Strip under water.

Light Emitting Characteristics

At full brightness, the unaltered green-blue Surelight Flat Sheet or Strip lamp has an average luminance of 24 foot-lamberts (82 cd/m^2), the unaltered white Surelight Flat Sheet or Strip lamp has an average luminance of 20 foot-lamberts (68 cd/m^2).

Unlike traditional lamps, Surelight Flat Sheet or Strip does not emit light as a point source. This nature of the lamp creates three important performance features:

- no impact on night vision after looking directly at the lamp;
- the eye is able to discern changes in width when approaching the lamp
- the lamp is visible from a greater distance in fog or smoke than any other type of light source.

Electrical Characteristics

Electro-luminescent lamps must be illuminated with alternating current. Olmec Power Supplies have been specifically developed to power Surelight Flat Sheet or Strip lamps at the most efficient ratings and must be used for proper operation of the product.

At the nominal recommended operating parameters for high brightness applications, the lamp is driven with 280VAC at 650 Hz.

The current draw at this brightness is 0.3 mA /in² (0.05 mA/cm²) of illuminated surface. For lower required brightness applications, the voltage and frequency may be reduced to the point where 120VAC at 60Hz is all that is necessary to light the product for night light installations.

Power Supplies

Olmec Advanced Materials Ltd. has a range of standard AC power supplies:

Input Voltage	Lamp Capacity
120/240 VAC	100 -12,500 in ² (650 – 80,000 cm ²)

In addition, Olmec Advanced Materials Ltd. has a range of Low Voltage DC Power supplies for vehicles, aircraft and other applications:

9 VDC	4.5-36 in ² (30 – 230 cm ²)
12 VDC	16 - 900 in ² (100 – 6000 cm ²)

Encapsulation

Surelight Flat Sheet or Strip lamps are encapsulated in laminate. This process provides for electrical insulation and protection from moisture. The standard all-purpose laminate is appropriate for use in most applications, including damp or humid locations.

Colour Options

Surelight Flat sheet or Strip is produced in two stock colours, green/blue and white. The white lamp has a pink hue when not illuminated; the green/blue lamp is off-white when not illuminated.

Overlays may be incorporated to produce almost any colour.

Light Output - power to light ratio:

Frequency	Voltage	Light Output (fL)
1100 Hz	40	9
	60	18
	80	32
	100	48
	120	62
700 Hz	40	7
	60	15
	80	23
	100	33
	120	46
300 Hz	40	4
	60	9
	80	13
	100	18
	120	23

Current consumption per cm² for different frequencies at a fixed driving voltage of 125v.

Frequency	Current Density (microamps/cm ²)
300 Hz	55
500 Hz	130
700 Hz	185
900 Hz	225
1100 Hz	250
1300 Hz	310
1500 Hz	349
1700 Hz	405
1900 Hz	450
2100 Hz	475